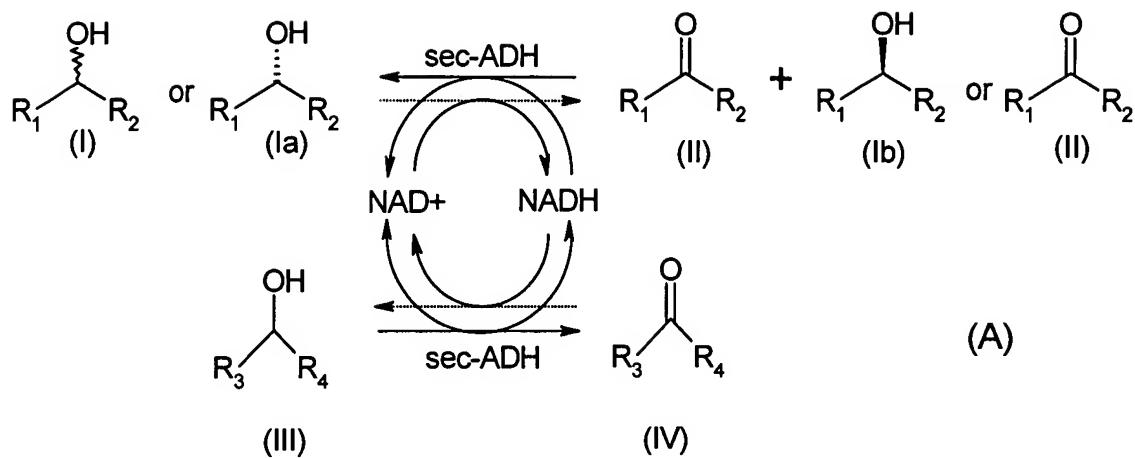


1. (original): A biocatalyst having alcohol dehydrogenase activity which can be obtained from *Rhodococcus*.
2. (currently amended): The biocatalyst according to claim 1, obtained obtainable from *Rhodococcus ruber* DSM 14855
3. (original): The biocatalyst according to claim 1 which shows stereospecific alcohol dehydrogenase activity in the oxidation of secondary alcohols or the reduction of ketones.
4. (original): The biocatalyst according to claim 1 in purified form.
5. (currently amended): The biocatalyst according to ~~any one of~~ claim 1 having a molecular weight on denaturing SDS polyacrylamide electrophoresis from 32 to 44 kDa, ~~especially of about 38 kDa~~.
6. (currently amended): The biocatalyst according to claim 1 having a molecular weight according to size exclusion chromatography of 55 to 69 kDa, ~~especially of about 62 kDa~~.
7. (original): The biocatalyst according to claim 1 comprising Zn^{2+} bound to the molecule.
8. (currently amended): The biocatalyst according to claims 1 including the partial sequence EVGADAAAR (SEQ ID No: 1) within the total sequence of at least one polypeptide forming the whole or part of the enzyme, or wherein one of the amino acids mentioned in the partial sequence is exchanged against a different amino acid.
9. (original): The biocatalyst according to claim 1 including the partial sequence TD[L/I]FEVVA[L/I]AR (SEQ ID NO: 2) within the total sequence of at least one polypeptide forming the whole or part of the enzyme, where [L/I] is leucine or isoleucine, or wherein one of the amino acids mentioned in the partial sequence is exchanged against a different amino acid.
10. (original): The biocatalyst according to claim 1 including the partial sequence SGAGAADA[L/I]R (SEQ ID NO: 3) within the total sequence of at least one polypeptide forming the whole or part of the enzyme, where [L/I] is leucine or isoleucine, or wherein one of the amino acids mentioned in the partial sequence is exchanged against a different amino acid.
11. (original): The biocatalyst according to claim 1 including the partial sequence V[L/I]AVD[L/I]DDDE (SEQ ID NO: 4) within the total sequence of at least one polypeptide forming the whole or part of

the enzyme, where [L/I] is leucine or isoleucine, or wherein one of the amino acids mentioned in the partial sequence is exchanged against a different amino acid.

12. (currently amended): The biocatalyst according to claim 1 including the partial sequence V[L/I]AVD[L/I]DDDXRX? (SEQ ID NO: 5) within the total sequence of at least one polypeptide forming the whole or part of the enzyme, where [L/I] is leucine or isoleucine and X stands for an unidentified amino acid, or wherein one of the amino acids mentioned in the partial sequence is exchanged against a different amino acid.
13. (currently amended): The biocatalyst according to claim 1 including the partial sequence sequence-[TD/DT] [L/I]MEVVA[L/I]AR (SEQ ID NO: 6, either with TD in the beginning or with DT in the beginning) within the total sequence of at least one polypeptide forming the whole or part of the enzyme where the sequence in brackets is selected from the two alternatives mentioned therein and where [L/I] is leucine or isoleucine, or wherein one of the amino acids mentioned in the partial sequence is exchanged against a different amino acid.
14. (original): A recombinant biocatalyst according to claim 1.
15. (currently amended): A biocatalyst according to claim 1, which shows alcohol dehydrogenase activity in the presence of up to 50, ~~preferably up to 80~~ percent by volume of isopropanol, or in the presence of up to 20, ~~preferably up to 50~~ percent by volume of acetone.
16. (currently amended): A method for the oxidation of secondary alcohols and/or the reduction of ketones wherein said oxidation or reduction is carried out in the presence of a catalytically effective amount ~~The use of a biocatalyst with alcohol dehydrogenase activity according to claim 1 in the oxidation of secondary alcohols and/or the reduction of ketones.~~
17. (currently amended): A method ~~The use~~ according to claim-1516, where the oxidation and/or reduction is one of the reactions in the following reaction scheme (A)



wherein, in formula I, Ia and Ib, R₁ and R₂ are two different moieties selected from the group consisting of unsubstituted or substituted alkyl, unsubstituted or substituted alkenyl, unsubstituted or substituted alkynylalkynyl, unsubstituted or substituted cycloalkyl, unsubstituted or substituted aryl and unsubstitutedunsubstituted or substituted heterocyclyl, or R₁ and R₂ together form an unsubstituted or substituted bridge; and in formula III and formula IV, R₃ and R₄ are two different or preferably two identical lower alkyl or aryl moieties, or together form a bridge.

18. (cancel).

19. (currently amended): A method The use according to claim 16 ~~in~~for the stereoselective production of chiral or diastereomeric alcohols from the corresponding ketones.

20. (currently amended): A method ~~The use according to claim 15 in 16 for~~ the chemoselective, especially stereoselective, oxidation of secondary alcohols where only the hydroxy group with the appropriate steric form is oxidized to the corresponding oxo group

21. (currently amended): A method ~~The use according to claim 18 where the stereoselective oxidation is used for the enantioselective oxidation of only one isomer of a mixture of enantiomers or diastereomers of secondary alcohols.~~

22. (currently amended): A nucleic acid coding for a biocatalyst with alcohol dehydrogenase activity according to claim 1.

23. (currently amended): A nucleic acid according to claim 22, ~~especially a DNA or RNA~~, which is a recombinant nucleic acid.

24. (currently amended): A microorganism transformed with a nucleic acid coding for a biocatalyst according to claim 1.

25. (currently amended): A method for the production of a biocatalyst mentioned in claim 24 which comprises employing The use of a microorganism according to claim 24 in the production of a biocatalyst mentioned in claim 24.

26. (currently amended): A method The use of a microorganism, especially a host cell expressing the biocatalyst, according to claim 24 in for the catalysis of the oxidation of secondary alcohols or the reduction of ketones wherein said oxidation or reduction is carried out in the presence of a catalytically effective amount of a microorganism according to claim 24.

27. (currently amended): -A polynucleotide, ~~namely a DNA~~, or a recombinant polynucleotide each comprising a DNA, each coding for an enzyme showing alcohol dehydrogenase activity, where the DNA is characterized by the following sequence (SEQ ID NO: 47)

ATGAAAGCCG TCCAGTACAC CGAGATCGGC TCCGAGCCGG TCGTTGTCGA CATCCCCACC 60
CCGACGCCCG GGCCGGGTGA GATCCTGCTG AAGGTCACCG CGGCCGGGCT GTGCCACTCG 120
GACATCTTCG TGATGGACAT GCCGGCGGCG CAGTACGCCT ACGGCCTGCC GCTCACCCCTC 180
GGCCACGAGG GTGTCGGCAC CGTCGCCGAA CTCGGCGAGG GCGTCACGGG ATTGGGGTG 240
GGGGACGCCG TCGCCGTGTA CGGGCCGTGG GGCTGCGGTG CGTGCACCGC CTGCGCGC 300
GGCCGGGAGA ACTACTGCAC CCGCGCCGCC GACCTGGGCA TCACGCCACC CGGTCTCGGC 360
TCGCCCCGAT CGATGGCCGA GTACATGATC GTCGATTGG CGCGCCACCT CGTCCCGATC 420
GGAGACCTCG ACCCGGTCGC CGCGCGCCG CTCACCGACG CCGGTCTGAC GCCGTACAC 480
GCGATCTCCC GGGTCTGCC GCTGCTGGG CGGGCTCGA CGGCCGTCGT CATCGGTGTC 540
GGCGGGCTCG GCCACGTCGG CATCCAGATC CTGCGCGCCG TCAGCGCGC CCGTGTGATC 600
GCCGTGACC TCGACGACGA CCGTCTCGCC CTCGCCCCG AGGTCGGCGC CGACGCCGCG 660
GTGAAGTCGG GCGCCGGTGC GGCAGACGCG ATCCGGGAAC TGACCGGGCG CCAGGGCGCG 720
ACGGCGGTGT TCGACTTCGT CGGCGCCCGAG TCGACGATCG ACACGGCGCA GCAGGTGGTC 780
GCGGTGACG GGCACATCTC GGTCTGGGC ATCCACGCCG GCGCACACGC CAAGGTGGGG 840
TTCTTCATGA TCCCCTTCGG CGCCTCCGTC GTGACCCCGT ACTGGGGCAC CCGGTCTGGAA 900
CTGATGGAGG TCGTCGCGCT GGCCCGCGCC GGCGGGCTGG ACATCCACAC CGAGACGTT 960
ACCCCTCGACG AGGGGCCGGC GGCGTACCGG CGGCTGCGCG AGGGCAGCAT CCGCGGCCGC 1020
GGCGTGGTGG TTCCCTGA 1038

or variants thereof with conservative nucleic acid replacements that lead to no change in the resulting amino acid sequence or such changes in the base sequence that lead to amino acid replacements in the amino acid sequence resulting from translation thereof for 5 % or less of the total number of amino acids coded by and resulting from translation of the sequence of SEQ ID NO: 47, provided that the resulting polypeptides still display an alcohol dehydrogenase activity, and/or with insertions and/or deletions.

28. (currently amended): -A polynucleotide or a recombinant polynucleotide according to claim 27 translation of which results in 3 % or less amino acid replacements compared with those resulting from the nucleotide sequence mentioned in claim 27 as SEQ ID NO: 47
29. (currently amended): -A polynucleotide or a recombinant polynucleotide according to claim 27 comprising a DNA of SEQ ID NO: 47.
30. (currently amended): A polynucleotide or a recombinant polynucleotide according to claim 27 that codes for a polypeptide with alcohol dehydrogenase activity that has at least one of the following properties:
 - pH optimum in the reduction of ketones in the presence of NADH: pH 6 to pH 7;
 - pH optimum in the oxidation of alcohols, ~~especially of 1-phenylethanol~~ in the presence of NAD⁺: pH 8.5 to pH 9.5;
 - temperature optimum in the reduction of ketones in the presence of NADH: between 43 and 65 °C;
 - temperature optimum in the oxidation of secondary alcohols in the presence of NAD⁺: between 43 and 65 °C;
 - temperature stability under the conditions just given for the temperature optimum at 50 °C less than 35 % activity loss during 24 hours;
 - stability also in the presence of up to 50 percent by volume of isopropanol;
 - stability also in the presence of up to 20 percent by volume of acetone.
31. (currently amended): -A polynucleotide or a recombinant polynucleotide according to claim 30 that codes for a polypeptide with alcohol dehydrogenase activity that has all of the properties given in claim 30.

32. (currently amended): -A DNA complementary to the polynucleotide or recombinant polynucleotide in claim 27.

33. (original): A vector comprising a recombinant polynucleotide according to claim 27.

34. (original): A vector according to claim 33 wherein the polynucleotide comprises a DNA with SEQ ID NO: 47.

35. (original): A microorganism transformed with a polynucleotide or a recombinant polynucleotide according to claim 27.

36. (original): A microorganism transformed with a vector according to claim 33.

37. (currently amended): A polypeptide showing alcohol dehydrogenase activity of the sequence with SEQ ID NO: 48:

MKAVQYTEIG SEPVVVDIPT PTPGPGEILL KVTAAGLCHS DIFVMDMPAA QYAYGLPLTL 60
GHEGVGTVAE LGEGVTGFGV GDAVAVYGPW GCGACHACAR GRENYCTRAA DLGITPPGLG 120
SPGSMAEYMI VDSARHLVPI GDLDPVAAAP LTDAGLTPYH AISRVLPLLG PGSTAVVIGV 180
GGLGHVGIQI LRAVSAARVI AVDLDDDRILA LAREVGADAA VKSGAGAADA IRELTGGQGA 240
TAVFDFVGAQ STIDTAQQVV AVDGHISVVG IHAGAHAKVG FFMIPFGASV VTPYWGTRSE 300
LMEVVALARA GRLDIHTETF TLDEGPAAAYR RLREGSIRGR GVVVP 345

as well as truncated or elongated versions thereof or those with amino acid replacements of up to 5 % of the number of amino acids forming part of the sequence given under SEQ ID NO: 48 and/or insertions, sequence extensions or deletions or combinations of two or more thereof, provided that the resulting polypeptide still displays an alcohol dehydrogenase activity.

38. (original): A polypeptide according to claim 37 with the sequence given as SEQ ID NO: 48 or a version thereof wherein up to three percent of the amino acids are replaced by other amino acids.-

39. (currently amended): -A polypeptide according to claim 37 with the sequence given as SEQ ID NO: 48 or a version thereof wherein up to 3 amino acids are replaced by other amino acids.

40. (currently amended): -A polypeptide according to claim 37 with the sequence of SEQ ID NO: 48.

41. (currently amended): A polypeptide according to claim 37 that has at least one of the following properties:

- pH optimum in the reduction of ketones in the presence of NADH: pH 6 to pH 7;
- pH optimum in the oxidation of alcohols, especially of 1-phenylethanol in the presence of NAD⁺: pH 8.5 to pH 9.5;
- temperature optimum in the reduction of ketones in the presence of NADH: between 43 and 65 °C;
- temperature optimum in the oxidation of secondary alcohols in the presence of NAD⁺: between 43 and 65 °C;
- temperature stability under the conditions just given for the temperature optimum at 50 °C less than 35 % activity loss during 24 hours;
- stability also in the presence of up to 50 percent by volume of isopropanol;
- stability also in the presence of up to 20 percent by volume of acetone.

42. (currently amended): A polypeptide according to claim 41 with alcohol dehydrogenase activity that has all of the properties given in claim 41.

43. (original): A method of using a polypeptide according to claim 37 for the oxidation of secondary alcohols and/or the reduction of ketones, comprising administering the reaction educts and substrates and the polypeptide in purified or partially purified form to a reaction medium and performing the oxidation and/or reduction.

44. (original): A method of using a microorganism according to claim 35 for the oxidation of secondary alcohols and/or the reduction of ketones, comprising administering the reaction educts and substrates and the microorganism in complete or digested form to a reaction medium and performing the oxidation and/or reduction.